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**REMARKS**

By this Amendment, Claims 13 and 30 have been amended without narrowing their scope. Claims 1-40 are pending in the application. Reconsideration of the January 15, 2004, Official Action is respectfully requested.

**1. Rejection Under 35 U.S.C. § 112, ¶1**

Claims 1, 3-5, 7-13, 16-20, 23-32 and 34 stand rejected under 35 U.S.C. § 112, ¶1. The reasons for the rejection are stated on page 2 of the Official Action. The rejection is respectfully traversed.

The Official Action acknowledges that the specification is enabling for a cigarette filter comprising intermetallic compounds or reagents. However, the Official Action asserts that the specification does not provide enablement for a filter whose scope does not only encompass cigarette filters, but encompasses general filters, such as car filters and/or air mask filters. It is further asserted in the Official Action that “[t]he specification is drawn to a specific type of filter, a cigarette filter. However, the above claims encompass non-cigarette filter for which applicant has no support of nor provides enablement for using the claimed ‘filter’ for filtering non-tobacco smoke.” Applicants respectfully disagree with these assertions.

Before addressing the specific assertions stated in the Official Action, the “enablement requirement” of 35 U.S.C. § 112, first paragraph, will be discussed. As set forth at MPEP § 2164.01, the test for enablement is whether one skilled in the art could make or use the claimed invention from the disclosure in the application coupled with information known in the art, without undue experimentation. “The scope of enablement ... is that which is disclosed in the specification plus the scope of what would be known to one of ordinary skill in the art without undue

experimentation.” National Recovery Technologies, Inc. v. Magnetic Separation Systems, Inc., 49 USPQ2d 1671 (Fed. Cir. 1999). The specification is not required to provide all information that would be used by one of ordinary skill in the art to make and use the invention; rather, applicants can rely upon general knowledge in the art to render a disclosure enabling. In fact, the Court of Appeals for the Federal Circuit has stated that a specification need not teach, and preferably omits, that which is well-known in the art. In re Buchner 18 USPQ2d 1331, 1332 (Fed. Cir. 1991).

The Patent Office has the burden to present reasoning or evidence to support an assertion that a specification is non-enabling. As stated in In re Marzocchi, 169 USPQ 367, 369 (CCPA 1971):

As a matter of Patent Office practice . . . a specification disclosure which contains a teaching of the manner and process of making and using the invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented *must* be taken as in compliance with the enabling requirement of the first paragraph of § 112 *unless* there is reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support. (Emphasis added).

Applying the above-discussed principles to the present application, the Official Action has correctly acknowledged that some of the present claims, including independent Claims 1, 13 and 20, encompass non-cigarette filters, as well as cigarette filters. Claim 1 recites “a filter comprising an intermetallic compound reagent which binds with a gaseous component of a gas stream to remove said gaseous component from said gas stream.”

Independent Claim 13 recites “a method of manufacturing a filter which is useful for removing a gaseous component of a gas stream ... to selectively remove the gaseous component from the gas stream” (emphasis added).

Independent Claim 20 is directed to a method of removing a gaseous component from a gas stream, which comprises “passing the gas stream in contact with a filter ... and removes said gaseous component from the gas stream” (emphasis added).

Independent Claim 34 is directed to a method of removing a gaseous component from a gas stream, which comprises “passing the gas stream in contact with a filter comprising a metal reagent which binds with a gaseous component of the gas stream and removes said gaseous component from the gas stream, wherein ... the gas stream is a smoke stream from a burning cigarette” (emphasis added).

The Official Action has not provided any evidence or reasoning to support the assertion that one having ordinary skill in the art would not be able to make and use the subject matter recited in Claims 1, 13, 20 and 34, in light of the guidance provided by the specification, coupled with information known in the art. Also, the Summary of the Invention section describes that “[t]he invention relates to a filter comprising an intermetallic reagent which binds with a gaseous component of a gas stream to remove the gaseous component from the gas stream.” This description corresponds closely to the subject matter recited in Claim 1. The Summary also includes a description corresponding to the subject matter recited in Claims 13, 20 and 34. Thus, under Marzocchi, because the present disclosure does contain a teaching of the manner and process of making and using the invention that is “in terms which correspond in scope to those used in describing and defining the

subject matter sought to be patented,” and the Patent Office has not provided any reason to doubt the objective truth of the disclosure, the present specification *must* be taken as in compliance with the enablement requirement of 35 U.S.C. § 112, first paragraph.

Independent Claim 32 recites “a filter comprising a metal reagent which binds with a gaseous component of a gas stream to remove said gaseous component from said gas stream, wherein the metal reagent ... is incorporated in cigarette filter paper located within a free-flow filter ....” (Emphasis added). Accordingly, Claim 32 is directed to cigarette filter. Because the Official Action admitted that the specification is enabling for a cigarette filter, the rejection of Claim 32 also is improper.

For the foregoing reasons, it is respectfully submitted that the specification meets the requirements of 35 U.S.C. § 112, first paragraph, with regard to the subject matter recited in Claims 1, 3-5, 7-13, 16-20, 23-32 and 34. Therefore, withdrawal of the rejection is respectfully requested.

**2. Rejections Under 35 U.S.C. § 102**

A. Claims 1, 2, 4, 8, 10, 30, 35 and 37 stand rejected under 35 U.S.C. § 102(b) over Derwent Abstract 1233957 A (“Derwent ‘957”). The reasons for the rejection are stated on page 3 of the Official Action. The rejection is respectfully traversed.

Applicants have obtained the English-language abstract of Patent No. DD 123957, which references WPI Acc No: 1977-20139Y/197712. For the Examiner's convenience, a copy of that abstract is attached.

Before addressing the grounds of rejection, a rejection for anticipation requires that all elements of the claimed invention be described in a single reference.

Furthermore, an anticipating reference must describe the claimed subject matter "with sufficient clarity and detail to establish that the subject matter existed in the prior art and that such existence would be recognized by persons of ordinary skill in the field of the invention." Crown Operations International Ltd. v. Solutia Inc., 62 USPQ2d 1917, 1921 (Fed. Cir. 2002). However, Derwent '957 fails to meet these requirements.

Claim 1 recites a filter comprising "an intermetallic compound reagent which binds with a gaseous component of a gas stream to remove said gaseous component from said gas stream" (emphasis added). As was explained in the Amendment filed on September 5, 2003, an "intermetallic compound" is a chemical compound that has a fixed ratio of elements and is composed of two or more types of metals. Exemplary intermetallic compounds include the aluminides, such as Fe<sub>3</sub>Al, FeAl, TiAl, NiAl and Ni<sub>3</sub>Al, as described at page 4, lines 17-18, of the present specification.

The Official Action asserts that Derwent '957 discloses metals or metal alloys having a high conductivity, such as Al, Cu, Ag or bronze in the form of powder, fibers, flakes or turnings, included in filter paper to increase filtration efficiency. However, Derwent '957 does not disclose that such metals or metal alloys are selected in types of elements and in amounts to form an intermetallic composition and therefore fails to disclose an "intermetallic compound reagent," as recited in Claim 1.

An intermetallic compound" requires at least two types of elements. Accordingly, single elements, such as Al, Cu or Ag, cannot be an "intermetallic compound," and only certain combinations of elements form intermetallic compounds

if the amounts of the elements are within required tolerance ranges. Derwent '957 fails to disclose any alloy composition that is an "intermetallic compound reagent." The only specific alloy that is mentioned in Derwent '957 is bronze. However, Derwent '957 does not disclose the composition of the "bronze," or that it is an intermetallic compound, as recited in Claim 1. Accordingly, the filter recited in Claim 1 is patentable over Derwent '957.

Dependent Claims 2, 4, 8, 10, 30, 35 and 37 also are patentable over Derwent '957 for at least the same reasons that Claim 1 is patentable.

Therefore, withdrawal of the rejection is respectfully requested.

B. Claims 33 and 34 stand rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 4,656,153 to Wennerberg ("Wennerberg"). The reasons for the rejection are stated on page 3 of the Official Action. The rejection is respectfully traversed.

Wennerberg discloses porous active carbon containing a uniform distribution of a metal or metal-containing material (see Abstract).

Independent Claim 33 recites a method of removing a gaseous component from a gas stream, which comprises "passing the gas stream in contact with a cigarette filter comprising a metal reagent which binds with a gaseous component of the gas stream and removes said gaseous component from the gas stream (emphasis added). Wennerberg fails to disclose passing a gas stream in contact with a cigarette filter to remove a gaseous component from the gas stream, as recited in Claim 33. Thus, Claim 33 is patentable over Wennerberg.

Independent Claim 34 recites a method of removing a gaseous component from a gas stream, which comprises "passing the gas stream in contact with a filter comprising a metal reagent which binds with a gaseous component of the gas

stream and removes said gaseous component from the gas stream, ... the gas stream is a smoke stream from a burning cigarette" (emphasis added). Wennerberg also fails to disclose a method that includes removing a gaseous component from a smoke stream from a burning cigarette with a filter, as recited in Claim 34. Thus, Claim 34 also is patentable over Wennerberg.

Therefore, withdrawal of the rejection is respectfully requested.

**3. Rejection Under 35 U.S.C. § 103**

Claims 3, 5-7, 9, 11-29, 31-34, 36 and 38-40 stand rejected under 35 U.S.C. § 103(a) over Derwent '957. The reasons for the rejection are stated on pages 4-5 of the Official Action. The rejection is respectfully traversed.

As mentioned above, Claim 1 recites a filter comprising "an intermetallic compound reagent which binds with a gaseous component of a gas stream to remove said gaseous component from said gas stream" (emphasis added).

Claim 13 recites a method of manufacturing a filter, which is useful for removing a gaseous component of a gas stream, comprising "incorporating an intermetallic compound reagent in a filter, the intermetallic compound reagent being effective to bind with a gaseous component of a gas stream sufficiently to selectively remove the gaseous component from the gas stream" (emphasis added). Claim 20 recites a method of removing a gaseous component from a gas stream, comprising "passing the gas stream in contact with a filter comprising an intermetallic compound reagent which binds with a gaseous component of the gas stream and removes said gaseous component from the gas stream" (emphasis added).

Derwent '957 fails to suggest an "intermetallic compound reagent."

Accordingly, the filter, as recited in Claim 1; the method of manufacturing a filter, as



recited in Claim 13; and the method of removing a component from a gas stream, as recited in Claim 20, are patentable over Derwent '957.

Regarding Claims 9, 19, 26 and 27, the Official Action asserts that "the additional claimed support materials are known in the art as shown in ... Wennerberg ... and would be obvious to a person of ordinary skill in the art to be capable of supporting the alloy catalyst of Abstract 1233957."<sup>1</sup> However, Wennerberg also fails to disclose or suggest an "intermetallic compound reagent." Wennerberg discloses porous active carbon containing a uniform distribution of a metal or metal-containing material. Wennerberg does not suggest that the metal or metal-containing material can be an "intermetallic compound reagent," as recited in Claims 1, 13 and 20. Accordingly, dependent Claims 3, 5-7, 9, 11, 12, 36 and 38-40; dependent Claims 14-19 and 31; and dependent Claims 21-29 also are patentable over Derwent '957 for at least the same reasons that Claims 1, 13 and 20, respectively, are patentable.

Independent Claim 32 recites "a filter comprising a metal reagent which binds with a gaseous component of a gas stream to remove said gaseous component from said gas stream, wherein the metal reagent comprises nanometer or micrometer size clusters of a transition metal or alloy containing a transition metal or a transitional metal salt and the metal reagent is incorporated in cigarette filter paper located within a free-flow filter ...." (Emphasis added). Although Derwent '957 discloses that the metals may be the transition metals Ag and Cu, Derwent '957 fails to disclose or

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<sup>1</sup> The ground of rejection stated in the Official Action is over Derwent '957 alone, but the Official Action appears to rely on Wennerberg to modify Derwent '957, i.e., the combination of Derwent '957 and Wennerberg. Applicants submit that the basis for the rejection is improper under the examining procedures set forth in MPEP § 706.02(j), page 700-45, which states that "[w]here a reference is relied on to support a rejection, whether or not in a minor capacity, that reference should be positively included in the statement of the rejection."

suggest a metal reagent comprising “nanometer or micrometer size clusters of a transition metal or alloy containing a transition metal or a transitional metal salt.”

Accordingly, the filter recited in Claim 32 also is patentable.

Independent Claim 33 recites a method of removing a gaseous component from a gas stream, which comprises “passing the gas stream in contact with a filter comprising a metal reagent which binds with a gaseous component of the gas stream and removes said gaseous component from the gas stream, wherein the metal reagent is incorporated in or on a support material selected from the group consisting of silica gel, porous carbon or a zeolite ....” (Emphasis added). As recited in Claim 33, the metal reagent binds with a gaseous component of the gas stream and removes the gaseous component from the gas stream. In other words, the metal reagent acts as an adsorbent. As explained at page 25 of Hawley's Condensed Chemical Dictionary, 12<sup>th</sup> ed., 1997 (copy attached), an “adsorbent” is “a substance that has the ability to condense or hold molecules of other substances on its surface. Activated carbon, activated alumina, and silica gels are examples.” The metal reagent, which acts as an adsorbent, is incorporated in or on a support material, which can be silica gel, porous carbon or a zeolite, which also can act as an adsorbent.

The English-language abstract of Patent No. DD 123957 discloses that the filter paper is produced from fibres of cellulose, glass, silicates or other minerals, or their mixtures, and that the filter paper can be improved by the inclusion of metals or alloys having high heat conductivity. The abstract also discloses that the filter paper:

is suitable for filtering industrial smokes or aerosols to prevent pollution of the atmosphere, it can also be used as cigarette filter. The metal particles adsorb impurities,

and lower the temp. of the gas mixt. rapidly dissipating  
heat . . . .

The Official Action asserts that the support materials recited in Claim 33 are disclosed by Wennerberg and that it allegedly would have been obvious that Wennerberg's support materials are supporting the alloy catalyst of Derwent '957. The Official Action further asserts that it would have been obvious "to have provided silica or zeolites large enough to support the alloy catalyst." Applicants respectfully disagree with these assertions.

The Derwent '957 filter paper includes a high-conductivity metal or metal alloy. Accordingly, the metal or metal alloy is supported in the paper. In contrast, Wennerberg discloses porous active carbon containing a dispersion of a metal or a metal-containing material. Wennerberg does not suggest using the active carbon containing the dispersion in a cigarette filter, as recited in Claim 33.

The Patent Office is required to make specific findings on a suggestion or motivation to combine the art against the claims. In re Dembiczak, 50 USPQ2d 1614, 1617-18 (Fed. Cir. 1999). However, the Patent Office has not made specific findings on a motivation or suggestion to modify the filter paper disclosed in Derwent '957, which includes a metal or alloy supported in the filter paper, by incorporating the metal or alloy in or on another support material, much less silica gel, porous carbon or zeolite, as recited in Claim 33. Also, the specific metals and alloys disclosed in Derwent '957 necessarily have high heat conductivity because their intended purpose is to lower the temperature of the gas mixture, rapidly dissipating heat. As explained in MPEP § 2143.01, page 2100-127, the proposed modification of Derwent '957 cannot render the paper unsatisfactory for its intended purpose, or change the principle of operation of the paper. However, the Official Action has not

established that the modified Derwent '957 paper would be suitable for its intended purpose, or that the principle of operation of the paper would not be changed by the asserted modification. For the foregoing reasons, it is respectfully submitted that the method recited in Claim 33 is patentable over Derwent '957 in view of Wennerberg.

Independent Claim 34 recites a method of removing a gaseous component from a gas stream, which comprises "passing the gas stream in contact with a filter comprising a metal reagent which binds with a gaseous component of the gas stream and removes said gaseous component from the gas stream, wherein the metal reagent is incorporated in or on a support material selected from the group consisting of silica gel, porous carbon and a zeolite and said silica gel is incorporated with cellulose acetate fibers and/or polypropylene fibers and the gas stream is a smoke stream from a burning cigarette" (emphasis added). Applicants respectfully submit that the method recited in Claim 34 also is patentable over Derwent '957 in view of Wennerberg for reasons stated above.

Therefore, withdrawal of the rejection is respectfully requested.

**4. Conclusion**

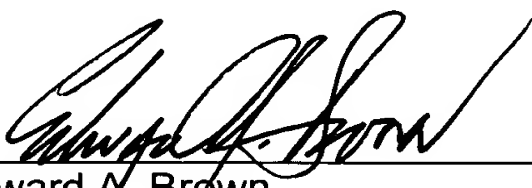
For the foregoing reasons, withdrawal of the rejections and prompt allowance of the application are respectfully requested.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: May 17, 2004

By: \_\_\_\_\_

  
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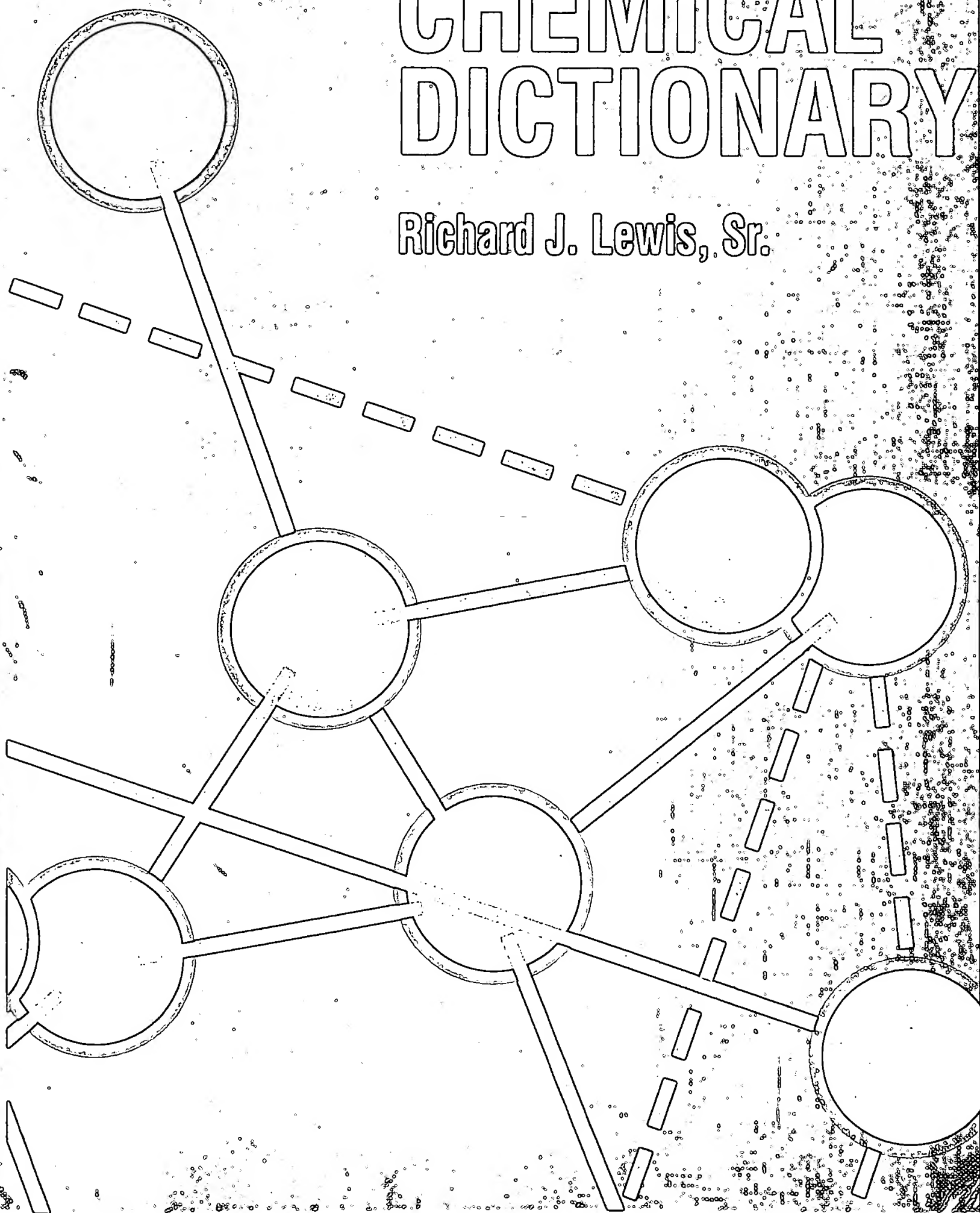
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# CONDENSED CHEMICAL DICTIONARY

Richard J. Lewis, Sr.



a catalyst for dehydrogenation and for decarboxylation reactions.

**Adkins-Peterson reaction.** Formation of formaldehyde by air oxidation of methanol in the vapor phase over metal oxide catalysts. A 40% aqueous formaldehyde solution is obtained.

**"ADMA" [Ethyl].** TM for a group of alkyl dimethylamines composed of even-numbered carbon chains from  $C_8$  to  $C_{18}$ .

**admiralty metal.** A nonferrous alloy containing 70-73% copper, 0.75-1.20% tin, remainder zinc.

Properties: Offers good resistance to dilute acids and alkalies, seawater, and moist sulfurous atmospheres. D 8.53 (20C); liquidus temperature 935C; solidus temperature 900C.

Use: Condenser, evaporator, and heat exchanger tubes, plates, and ferrules.

**"Admox" [Ethyl].** (lauryl dimethylamine oxide). TM for foam stabilizer and viscosity builder. Use: In janitorial products.

**adocain.** A mixture of cocaine hydrochloride and adonidin (a glucoside from *adonis vernalis*). Use: Heart stimulant and diuretic.

**"Adogen" [Sherex].** TM for primary fatty amines. Use: As corrosion inhibitors and sludge dispersants for lube oil additives, textile intermediates, antistatic agents, down well corrosion, inhibitors, and bactericides.

**"Adogen" [Sherex].** TM for dialkyl dimethyl quaternaries. Use: Paper debonders, dye retarders, organophilic clays, antistatic agents, car-wash rinse aids, sugar clarification, fabric softeners, and creme rinses.

**ADP.** Abbreviation for (1) adenosine diphosphate, (2) ammonium dihydrogen phosphate. See ammonium phosphate, monobasic.

**adrenaline.** (epinephrine). A hormone having a benzenoid structure.  $C_9H_{13}O_3N$ . It is obtained by extraction from the adrenal glands of cattle, and is also made synthetically. Its effect on body metabolism is pronounced, causing an increase in blood pressure and rate of heart beat. Under normal conditions, its rate of release into the system is constant; but emotional stresses such as fear or anger rapidly increase the output and result in temporarily heightened metabolic activity.

Hazard: Toxic by ingestion and injection.

**adrenocorticotrophic hormone.** See ACTH; corticoid hormone.

**adsorbent.** A substance which has the ability to condense or hold molecules of other substances on its surface. Activated carbon, activated alumina, and silica gel are examples.

**adsorption.** Adherence of the atoms, ions, or molecules of a gas or liquid to the surface of another substance, called the adsorbent. The best-known examples are gas/solid and liquid/solid systems. Finely divided or microporous materials presenting a large area of active surface are strong adsorbents, and are used for removing colors, odors, and water vapor (activated carbon, activated alumina, silica gel). The attractive force of adsorption is relatively small, of the order of van der Waals forces. When molecules of two or more substances are present, those of one substance may be adsorbed more readily than those of the others. This is called preferential adsorption.

See also absorption, chemisorption.

**adsorption indicator.** A substance used in analytical chemistry to detect the presence of a slight excess of another substance or ion in solution as the result of a color produced by adsorption of the indicator on a precipitate present in the solution. Thus, a precipitate of silver chloride will turn red in a solution containing even a minute excess of silver ion (silver nitrate solution), if fluorescein is present. In this example, fluorescein is the adsorption indicator.

**"Advacide" [AKZO].** TM for TPLA is a free-flowing powder of triphenyl lead acetate containing 10% of a liquid aromatic hydrocarbon mixture.

Use: Antifouling paints.

**"Advantage" [International Specialty].** TM for a variety of polymers. Use: Hair-care resins.

**advection.** The transfer of air and its characteristics by horizontal motion.

**aeolotropic.** (eolotropic). Displaying change of physical properties with change of position or direction, as in the change of refractive index on changing position of double refracting crystals: not isotropic.

**AEPD.** Abbreviation for 2-amino-2-ethyl-1,3-propanediol.

**aerate.** To impregnate or saturate a material (usually a liquid) with air, or some similar gas. This is usually achieved by bubbling the air

WPI Acc No: 1977-20139Y/197712

Paper for filtration of smoke or aerosols - contg. organic or inorganic fibres and metal particles to increase filtration efficiency

Patent Assignee: CESKOSLOVENSKA AKADEMIE VED (CESK ); PLIML J (PLIM-I)

Number of Countries: 002 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DD 123957	A	19770126				197712 B
CS 7503417	A	19770831				197747

Priority Applications (No Type Date): CS 753417 A 19750516

Abstract (Basic): DD 123957 A

Filter paper is produced from fibres of cellulose, glass, silicates or other minerals, or their mixts. is improved by inclusion of 1-50% of metals or alloys having high heat conductivity, such as Al, Cu, Ag or bronze, in the form of powder, fibres, flakes or turnings.

This paper is suitable for filtering industrial smokes or aerosols to prevent pollution of the atmosphere, it can also be used as cigarette filter. The metal particles adsorb impurities, and lower the temp. of the gas mixt. rapidly dissipating heat. The effectiveness of the filter is increased by 15-45%.

Derwent Class: D18; F09; J01

International Patent Class (Additional): D21F-011/14; D21H-005/16

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1 Select Statement(s), 1 Search Term(s)

Serial#TD198